Response to Review 1:

We shall add some examples and discussions to show that configuration for some restricted classes (with help variables) are practically interesting. Here we only mention shortly examples: 10 or 15 years ago the first configuration systems have been rule-based systems (or in other words definite Horn formulas) describing the product structure. Various systems computing the bill of materials are based on this skeleton approach. The components itself have been represented as simple propositions. The next step was to represent the components by means of resources. A component supplies and demands some functionalities (properties). Say a component supplies the properties $a$ and $b$ and demands $c$ and $d$. That can be encoded as definite Horn formulas.

Configuration considered in this paper does not meet incremental requirements. We would like to address this problem in the future.

Response to Review 2:

We shall improve the introduction by adding discussions of how configuration arises and of relations with other areas like logic-based abduction, argumentation existence, etc.

We shall add remarks to make proofs clearer.

Response to Review 3:

Abduction (Eiter and Gottlob, JACM 1995) and Configuration do have some close relations although they are different. Generally, instance of an abduction problem is a tuple $(V, H, M, T)$ where $V$ is the set of all propositional atoms, $H$ is a subset of atoms representing hypothesis, while $M$ is a subset of atoms representing observations (thus, $H$ and $M$ are disjoint). The problem is to ask whether there is $S\subseteq H$ such that $T\cup S$ is consistent and $T\cup S\models M$. We can see that abduction can be considered as a configuration problem in the way that the set of components $K$ is $H\cup T$ and the target formula is the conjunction of atoms in $M$. Thus hardness results about implication configuration in cases HORN and CNF can be directly obtained from Eiter and Gottlob’s results. However, Configuration problem essentially is not abduction problem because components and target are not necessarily atoms, and our paper contains a lot of other results can not directly obtained from known results about abduction.

We shall improve English writing.

Response to Review 4

It is true that implication configuration coincides with the argumentation existence problem [R.Hirsch, N.Gorogian, J. Logic & Computation 2010]. The complexity result for (CNF, \models, CNF) is in fact already known. We will state clearly known results.

We shall improve English writing.